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Burden of non-communicable diseases in South Asia: Evidence for epidemic of coronary heart disease in India is weak

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Health in South Asia

Future of Kerala depends on its willingness to learn from past

EDITOR—The Kerala model in health, cited by Bhutta et al in the theme issue on health in South Asia as replicable for South Asian countries,¹ is facing serious threats. The state has a triple burden of communicable, non-communicable, and traumatic diseases.

Stupendous growth of the private sector has resulted in skyrocketing healthcare costs. Lured by the hi tech sophistication of the private sector, people are abandoning basic principles of primary health care. Even poor people prefer private hospitals, and a major reason for sustaining poverty is healthcare cost.² The government is reducing its investments in health and education due to fiscal crises and pressure from funding and lending agencies. The opening up of the medical education sector to private entrepreneurs, lack of guidelines for the private practice of government doctors, and shortage of doctors for rural areas are all disturbing developments. Transfer of health-care institutions under local self-governments is yet to show the desired benefits.

The state is developing a long term plan, "Health Vision Kerala 2025," and a health policy. To equip the primary healthcare workforce to face the emerging challenges,³ job responsibilities were redefined recently.

Factors that determined the successful Kerala model, among others, include historically prevalent social justice, commitment of governments to health and education, land reforms, an organised public distribution system, streamlined primary health care, and an organised labour sector. Deterioration in these determinants is likely to have strong negative impact. Kerala should learn from its past to avoid the sad plight of some other Indian states.

V Mohanan Nair *Fogarty international fellow*
Joint Centre for Bioethics, 88 College Street,
University of Toronto, Toronto, ON, Canada
M5G 1L4
vmohananannair@utoronto.ca

Competing interests: MN is supported by a Fogarty international grant for his MHSc programme and is on secondment from Kerala Health Services, India.

- 1 Bhutta Z, Nundy N, Abbasi K. Is there hope for South Asia? *BMJ* 2004;328:777-8. (3 April.)
- 2 Sadanandan R. Government health services in Kerala—who benefits? *Econ Polit Wkly* 2001;August 11:3071-7.
- 3 Nair VM, Thankappan KR, Sarma PS, Vasan RS. Changing roles of grass-root level health workers in Kerala, India. *Health Policy Plann* 2001;16:171-9.

Sri Lanka needs to build on its strengths and gains

EDITOR—Bhutta et al and the World Bank highlight Sri Lanka as a model in achieving exceptional health status with comparatively low investments.^{1,2} However, recent data show a stagnation of gains (such as an increase in infant mortality from 15.9/1000 in 1998 to 17/1000 in 2001) and emerging challenges.^{1,3} This requires the model to be suitably modified to lower the preventable morbidity and mortality, while responding to the emerging challenges. The following examples show that Sri Lanka is deviating in an ad hoc manner from the successful model of preventive programmes at a relatively equitable grassroots level.

The preventive sector is progressively underfunded, rather than strengthened to meet the epidemic of non-communicable diseases. From 1993 to 1999 expenditure on preventive and public health declined from 10% (of total health expenditures) to 6%, and expenditure dedicated to the curative sector has been maintained around 44% to 47%.⁴

Human resource development is heavily biased towards medical officers in the curative sector rather than staff in the preventive sector, personnel, and support functions. From 1996 to 2001 the proportion of medical officers in the curative sector increased by 71% compared with a 33% increase in medical officers working in the community and a 6.5% increase in family health workers.⁵

Sri Lanka therefore requires urgent corrective action to build on its strengths and gains. Otherwise it may end up as an example of a country that dismantled its own pioneering model in an ad hoc manner.

Saroj Jayasinghe *associate professor*
Faculty of Medicine, Colombo 8, Sri Lanka
sarojoffice@yahoo.com

Competing interests: None declared.

- 1 Bhutta Z, Nundy S, Abbasi K. Is there hope for South Asia? *BMJ* 2004;328:777-9. (3 April.)
- 2 World Bank. *World development report 1993: investing in health*. Washington, DC: World Bank 1993.
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- 4 Ministry of Health, Nutrition and Welfare and Institute of Policy Studies. *Sri Lanka national health accounts: Sri Lanka national expenditures 1990-1999*. Colombo: Ministry of Health, Nutrition and Welfare 2002.
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Research cannot be funded when health itself has low priority

EDITOR—In the theme issue on health in South Asia Sadana et al analysed the lack of health research in South Asian countries.¹ Health is given the least priority in annual budgets. In a country such as India, which has a population of over 1 billion, the health budget is less than 2% of the total budget. This obviously affects the delivery of primary care, so where would be the funding for research?

The health system in South Asian countries is run mainly by the private sector. The private sector is driven by economics, so funds for research are again low. Vast numbers of patients go through the private health sector. Only proper collection of data would provide the clinical data that could then be used to devise protocols for managing different illnesses. Thus in the long run a healthier population would result. This would also decrease the burden on the health system of these countries.

Ali Asgar A Behranwala *specialist registrar, cardiothoracic surgery*
Alder Hey Hospital, Liverpool L12 2AP
abehranwala@hotmail.com

Competing interests: None declared.

- 1 Sadana R, D'Souza C, Hyder AA, Mushtaque A, Chowdhury R. Importance of health research in South Asia. *BMJ* 2004;328:826-30. (3 April.)

Community worker programmes may be occasional local solution

EDITOR—In the South Asia issue Moazzem et al criticise the promotion in developing countries of a Western style of health services based on personalised curative treatment administered by doctors and hospitals regardless of the entirely different disease pattern and socioeconomic conditions of most people.¹ On these grounds they call for national community health worker programmes.

We contend that personalised curative care is pivotal because diseases generally require clinical skills for control, and



patients demand alleviation of avoidable death, suffering, and anxiety related to illness.

Committed community health workers may sometimes be a useful link between communities and professional services. But in Africa, they were unable to substitute for professionals in delivering first line health care—unlike medical assistants, who with a few years' training may replace doctors in deprived areas. They generally offered solutions to problems for which communities already had an answer—for example, drugs available on markets.² Community health workers could not deal with many disease control interventions together (mass drugs administration, surveillance, health education, water and sanitation, and vector control).

We challenge the link made by the authors between reduction in infant mortality and the activities of community health workers. This indicator is sensitive to numerous social and economic factors.³ It decreased from 1970 to 2000 in all developing countries, with or without community health workers.

Community participation is pivotal in collaboratively managing publicly oriented health facilities,⁴ which are badly needed for disease control and patient centred care. Participation can enhance their responsiveness and utilisation rates. With adequate funding and managerial contracts, governments and international aid could promote such democratisation and quality health care.

Jean-Pierre Unger senior lecturer
Pierre de Paepe research assistant
Patricia Ghilbert research assistant
pghilbert@itg.be

Institute of Tropical Medicine, Department of Public Health, 155 nationalestraat, 2000 Antwerp, Belgium

Competing interests: None declared.

- 1 Moazzem Hossain SM, Bhuiya A, Khan AR, Uhaa I. Community development and its impact on health: South Asian experience. *BMJ* 2004;328:830-3. (3 April).
- 2 Van Balen H. An adequate interface with the community: the contribution of the basic health services. In: Streefland P, Chabot J, eds. *Implementing primary health care: experiences since Alma-Ata*. Amsterdam: Royal Tropical Institute, 1990:21-32.
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Roll on health in Africa issue

EDITOR—Highlighting the poor health of people in the developing world is one of the roles of a general medical journal.¹ While reading Editor's choice for the Health in South Asia issue,² I had to remind myself that I was reading about South Asia, not West Africa. Be it communicable diseases, non-communicable diseases, maternal and infant mortality, the catastrophe of HIV and AIDS, or the paltry allocation to the health sector by governments, the picture is similar—as the *BMJ* will expose when it visits Africa.

Similarly, the effects of rapid urbanisation to the detriment of rural development, where

most Africans live, can be seen in the rise of fatal road traffic crashes, congestion and overcrowding, stress, depression, and anxiety. Factors such as the prevailing illiteracy, which feeds ignorance, poverty, superstition, voodoo, and black magic, compound the awful statistics of morbidity and mortality across all ages and both sexes in Africa.

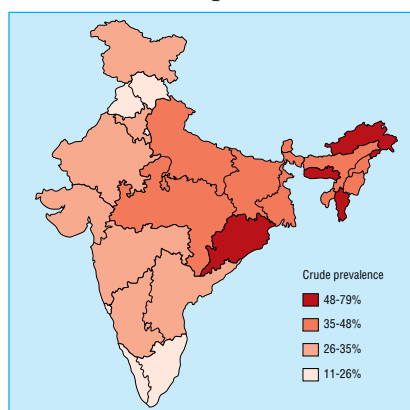
In most African countries hard data will be difficult to collect but the lamentable state of health in the continent is there for all who live there (or visit) to see. One further similarity is that South Asia and Africa are emerging from centuries of colonisation and plunder by their colonising masters. Some will say it is harsh to judge their poor performance or make comparisons with the colonising countries, only 50 years after independence, while the colonisers have enjoyed centuries of uninterrupted development and growth. I can't wait for the *BMJ* to throw its searchlight on health in Africa, to reveal all.

Joseph Ana managing editor
BMJ West Africa edition, UK Office, Luton
LU2 7AE
info@bmjwa.com

Competing interests: JA is managing editor of *BMJ* West Africa edition and trustee-director of the Nigerian Medical Forum, a UK registered charity, both of which have keen interest in seeing to improvements in healthcare planning and delivery in West Africa since 1991. Neither position attracts a salary, but his travel expenses are often partly refunded.

- 1 Ana J. The role of a general medical journal. *BMJ* 2004;328:591. (6 March).
- 2 Smith R. Editor's choice. Towards a global social contract. *BMJ* 2004;328:0. (3 April).

Patterns and distribution of tobacco consumption in India



Unadjusted prevalence of adults aged 18 and above who smoke or chew tobacco in 1998-9 by Indian state

Study should be interpreted cautiously

EDITOR—The article by Subramanian et al on patterns and distribution of tobacco consumption in India is interesting and informative but raises issues.¹

The second national family health survey collected data from more than 90 000 ever married women aged 15-49 years in India, covering all states. The data

on the consumption pattern of paan masala, tobacco, smoking, and alcohol among household members aged 15 years and above were collected. However, no direct interviews were conducted of the adult men in the household (the information was collected by the women interviewed). In view of the above, under-reporting is a strong possibility as the women interviewed might not be aware of the consumption of tobacco outside the household. Also, because of the social stigma attached with the consumption of tobacco women might be under-reporting to the interviewers.

Hence this study may not be a true reflection of current consumption of tobacco among the adult men in India. To our knowledge it is, however, the best data set available on the prevalence of consumption of paan masala, tobacco, smoking, and alcohol in the country.

Preeti Singh research scientist
itispreeti@hotmail.com

Umesh Kapil professor
Department of Human Nutrition, All India Institute of Medical Sciences, New Delhi-110029, India

Competing interests: None declared.

- 1 Subramanian SV, Nandy S, Kelly M, Gordon D, Davey Smith G. Patterns and distribution of tobacco consumption in India: cross sectional multilevel evidence from the 1998-9 national family health survey. *BMJ* 2004;328:801-6. (3 April).

Impact of religion was not considered

EDITOR—Subramanian et al have confirmed in their study what we in the field have suspected for a long time¹: tobacco consumption in the South Asian communities based in the United Kingdom reflects what is happening in their countries of origin.²

Smoking and tobacco chewing is still a matter of health inequalities, and the strategy adopted by the UK Department of Health in tackling health inequalities has raised the profile of smoking cessation in addressing these health inequalities in the South Asian communities.³ South Asian communities have the highest smoking rates.⁴

However, what Subramanian et al have not looked at closely is the issue around religion and tobacco use. In 2001 the UK census was the first one of its kind to ask about religion. We now find that Sikh Punjabis who had been included within the Indian category have the lowest tobacco consumption rates both in the United Kingdom and in India on account of a decree set on 13 April 1699 (*Baisakhi*) in the Sikh Commonwealth of North India, which banned tobacco use through a baptism ceremony called the Amrit ceremony.⁵ On 13 April 2004 some one million Sikhs refreshed their vows not to smoke in this year's *Baisakhi* baptism. The Sikh leaders have taken a strong position against tobacco and have banned its sale around the Golden Temple in Amritsar.

If the World Health Organization's framework convention on tobacco control treaty and its application is handed to the many Indian religious groups, then, like the Amrit ceremony in Punjab, they could tackle

tobacco sale and consumption far quicker than the state. As the World Bank reported in 1999, many states are still hooked on tobacco taxes to balance budgets and dare not put bans into place.

Kawaldip Singh Sehmi *professor of health inequalities*
Quit, 211 Old Street, London EC1V 9NR
k.sehmi@quit.org.uk

Competing interests: None declared.

- 1 Subramanian SV, Nandy S, Kelly M, Gordon D, Davey Smith G. Patterns and distribution of tobacco consumption in India: cross sectional multilevel evidence from the 1998-9 national family health survey. *BMJ* 2004;328:801-6. (3 April.)
- 2 Samarasinghe D, Goonaratna C. *BMJ* Tobacco related harm in South Asia. 2004;328:780 (3 April.)
- 3 Department of Health. *Tackling health inequalities: a programme for action*. London: Stationery Office, 2003.
- 4 Department of Health. *Health survey of England—the health of minority ethnic groups*. London: Stationery Office, 1999.
- 5 McAuliffe MA. *Sikh religion: its gurus, sacred writings, and authors*. London: Oxford University Press, 1909.

Authors' reply

EDITOR—Singh raises the issue of under-reporting due to social stigma and the lack of adult male members being interviewed directly in the second national family health survey dataset. However, as he correctly acknowledged, the second national family health survey is the best dataset available on the prevalence of consumption of paan masala, tobacco, smoking, and alcohol in India. Besides, these data come from the household questionnaire, in which one respondent was interviewed about their household.

In 40% of cases these respondents were men and 60% were women. Male respondents reported that 33% of men in their households smoked, whereas female respondents reported that 34% of men in their households smoked. Some reporting bias may exist on the tobacco consumption of men but this is likely to be modest. However, readers should be aware that under-reporting, based on sex and perhaps standard of living, may well be present in these data and we thank Singh for raising this issue. The focus of our paper was not on prevalence of tobacco consumption but on disparities in consumption, and it is possible that the extent of inequalities may be somewhat attenuated as a result of reporting bias.

Sehmi makes an interesting point about religion and tobacco consumption. Unfortunately, the dataset did not permit (analytically) a further breakdown of the religious grouping. However, we fully acknowledge the important role that religion may have in reducing tobacco consumption and influencing other health related behaviours.

S V Subramanian *assistant professor*
Department of Society, Human Development and Health, Harvard School of Public Health, 677 Huntington Avenue, KRESGE 7th floor, Boston, MA 02115-6096, USA
svsubram@hsph.harvard.edu

Shailen Nandy *PhD student*
School of Policy Studies, University of Bristol, Bristol

Michelle Kelly *PhD student*
Social Science Research Unit, Institute of Education, University of London, London

Dave Gordon *professor of social justice*
School of Policy Studies, University of Bristol, Bristol

George Davey Smith *professor of clinical epidemiology*
Department of Social Medicine, University of Bristol, Bristol

Competing interests: None declared.

Burden of non-communicable diseases in South Asia

Evidence for epidemic of coronary heart disease in India is weak

EDITOR—India is widely believed to be on the verge of an epidemic of coronary heart disease, as expressed by Ghaffar et al in their clinical review.^{1,2} We believe this assumption to be based on weak evidence.

We found one meta-analysis, reporting a ninefold increase in urban India (1-9%) and twofold increase (2-4%) in rural India between the 1960s and 1990s.³ We believe these results to be inaccurate because of the poor quality of underlying data and because comparisons were based on studies defining coronary heart disease differently. Coronary heart disease was measured by using either Minnesota coded electrocardiograms or clinically defined using non-validated translations of the Rose angina questionnaire. The questionnaire tends to give greater positive results and is less valid in women and South Asian populations.^{4,5}

Our review, which is currently undergoing peer review, focused on Minnesota coded electrocardiograms to provide an objective measure. We reviewed 31 studies published between 1974 and 2002.

The quality of the data was generally poor as many did not fulfil basic criteria for epidemiological research. Furthermore, research was generally concentrated on a small area around the capital, Delhi. We found the prevalence in urban India to be higher than rural areas in men and women. We found no clear rise in prevalence, including age specific rates, in men over a 27 year period, with some modest evidence of a rise in women.

A major expansion of research and surveillance is urgently needed, with new studies following more rigorous and standardised methods to permit comparison over time, between locations, and between and within populations. Only then will the true extent and impact of the disease in South Asia be known. In the meantime, claims of a massive epidemic need to be interpreted with caution.

Naseer Ahmad *house officer*
c/o 89 Clitheroe Road, Manchester M13 0QU
naseer102@hotmail.com

Raj Bhopal *professor of public health*
Public Health Sciences Section, Division of Community Health Sciences, University of Edinburgh, Edinburgh EH8 9AG

Competing interests: None declared.

- 1 Ghaffar A, Srinath Reddy K, Singhi M. Burden of non-communicable diseases in South Asia. *BMJ* 2004;328:807-10. (3 April.)

- 2 Yusuf S, Reddy S, Ounpuu S, Anand S. Global burden of cardiovascular disease. Part II. Variations in cardiovascular disease by specific ethnic groups and geographic regions and prevention strategies. *Circulation* 2001;104:2855-64.
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Authors' reply

EDITOR—Ahmad and Bhopal's concern about the inadequate data available to document a rise in the prevalence of coronary heart disease in India is justified. This reinforces our own expressed concerns about inadequate data from South Asia on non-communicable disease related burdens and their trends.

Despite the fact that there are methodological weaknesses in the meta-analysis published by Gupta et al,¹ several types of data indicate a rising burden of coronary heart disease in India. Recent epidemiological surveys show a high urban prevalence of 11%,² consistent with earlier reports.^{3,4} Rural surveys have been inadequate and nationally representative surveys, using standardised methods, are unavailable.

Unpublished data from a multicentre study of men aged 35-59 years, conducted on behalf of the Indian Council of Medical Research during 1990-4, showed rising prevalence rates of coronary heart disease with increasing urbanisation (rural Vellore 3.15 per 1000 male population; rural Haryana 4.48/1000; urban Vellore 5.92/1000; and urban Delhi 8.72/1000 male population). Tertiary care centres have documented a steep rise in the proportion of admissions for coronary heart disease.⁵

Although each of these datasets has several sources of bias, the direction of change consistently points to an increase in coronary heart disease burdens, however defined. A clear need exists to develop better systems for accurately measuring and clearly documenting the epidemiological transition that is under way in India.

Abdul Ghaffar *public health specialist*
Global Forum for Health Research, Geneva, Switzerland
ghaffara@who.int

K Srinath Reddy *professor*
Department of Cardiology, All India Institute of Medical Sciences, New Delhi, India

Monica Singhi *research assistant*
Initiative for Cardiovascular Health Research in the Developing Countries, New Delhi

Competing interests: None declared.

- 1 Gupta R, Gupta VP. Meta-analysis of coronary heart disease prevalence in India. *Indian Heart J* 1996;48:241-5.
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Hit for six

BMJ needs to decide whether it is a journal or magazine

EDITOR—It is surprising that an article such as the analysis of test matches between India and Pakistan by Abbasi and Khan is published in a reputed journal.¹ The *BMJ* likes to remind its readers time and again about the lack of publication space, and I believe many good articles (pertaining to medicine) are turned down for this reason. There is a difference between a medical journal and a magazine. Otherwise you could appoint Sir Geoffrey Boycott as one of the editors of the *BMJ*.

I think that the *BMJ* is taking its readers for a ride—or perhaps hitting them for six.

Abhijit M Bal *specialist registrar*
Department of Microbiology, General Infirmary,
Leeds LS1 3EX
bal@medscape.com

Competing interests: None declared.

1 Abbasi K, Khan KS. India versus Pakistan and the power of a six: an analysis of cricket results. *BMJ* 2004;328:800. (3 April.)

Miandad's six is metaphor for chaos and complexity

EDITOR—Miandad's six, as analysed by Abbasi and Khan in their short report,¹ is a metaphor that takes us beyond the boundary to new thinking. It is similar to the butterfly metaphor of chaos and complexity science: "A butterfly flapping its wings in Texas causes a tornado in Texas." This six caused ripples across time and space.

C L R James, whose words, "What do they know of cricket who only cricket know?" were paraphrased in the opening sentence of the article, argued in his book *Beyond a Boundary* that cricket is an art whose structure allows variety and that it relates to history and society.²

Cricket is a game of complexity, with non-linear and dynamic interactions of the weather, ground conditions, selection policies (which were mentioned by the authors), and many other factors determining out-

comes. In such systems, chaos rears its head, making plausible the hypothesis mentioned by Abbasi and Khan, that a single shot had an enduring influence.

Publication of this article has been dismissed by some on *bmj.com* as "not cricket," yet it may have the same effect as Miandad's six in creating change, bringing to the attention of readers concepts of simplicity and complexity which underlie all of medicine and health, and all of life itself. It may thus still become a landmark article, which may bowl us over, going beyond the boundary.

Such concepts have been previously described in relation to the South Asian community, with chaos and complexity being used as a tool for change in health promotion.³⁻⁴ Cricket has been used as a tool for change in health, with cricket scores and history used to stimulate interest at a South Asian heart health fair in Toronto in 1995.⁴ The idea of Miandad's six leading to change is therefore not as far fetched as it may sound.

Vivian S Rambihar *cardiologist*
Medical Arts Building, #3302, 3000 Lawrence E,
Toronto, ON, Canada M1P 2V1
vashna@rogers.com

Competing interests: None declared.

- 1 Abbasi K, Khan KS. India versus Pakistan and the power of a six: an analysis of cricket results. *BMJ* 2004;328:800. (3 April.)
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BMJ has published pioneering work

EDITOR—As an exile in Canada for many years, one of the things I have missed most has been cricket. The sport is played here, but somehow the ambience is not that favourable, particularly in January. I was therefore pleasantly surprised to see the analysis of India and Pakistan test matches by Abbasi and Khan.¹



Miandad at the crease, a year after hitting the six whose analysis launched a thousand (well, 72) rapid responses

I have a friend who is a doctor in India. He has described to me how almost all activities in both countries came to a halt during the recent series. I think that this must have a notable impact on health in both countries. It would be illuminating if health staff on the spot could report statistics on the incidence of myocardial infarctions, strokes, anxiety attacks, bizarre behaviour, decreased surgical operations, etc, during the matches. This work could easily be extended to World Cup rugby games, international ice hockey games, Ryder Cup matches, and of course soccer games—for example, Rangers v Celtic.

I see the beginnings of a new field of study and thank the authors and the *BMJ* for their pioneering efforts.

Rob Murray *professor (emeritus)*
University of Toronto, Toronto, ON, Canada
M5S 1A8
rmurray6745@rogers.com

Competing interests: None declared.

1 Abbasi K, Khan KS. India versus Pakistan and the power of a six: an analysis of cricket results. *BMJ* 2004;328:800. (3 April.)

Summary of rapid responses

bmj.com

Abbasi and Khan's analysis of the effects of Pakistan batsman Javed Miandad's dramatic match-winning six off the last ball in a one day match that his side had looked like losing to India until that delivery, resulted in an unusually high number of responses.¹ Most of the more than 70 correspondents were united that the paper was entirely misplaced in a medical journal and should have encountered the same fate as most other submitted manuscripts.

Some even argued that it showed "laddishness" at the *BMJ*. Others additionally criticised the chosen statistical analysis as unsuitable or pointed out the lack of confounders.

Cricket fans engaged in mostly humorous, but none the less detailed, descriptions and discussions about the various merits of India's and Pakistan's teams, the achievements of individual players, and the potentially tremendous benefits of various kinds of large scale sporting events for the health (or psyche) of a nation.

Birte Twisselmann *technical editor*
BMJ

Competing interests: BT grew up in Germany, a country not known for its cricketing talent. She therefore has not a clue what most correspondents are talking about but remains fascinated by the terminology.

1 Electronic responses. India versus Pakistan and the power of a six. *bmj.com* 2004. <http://bmj.bmjournals.com/cgi/eletters/328/7443/800> (accessed 24 May.)

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